ENGINEERING NEWS-RECORD

Major General
RT W. CRAWFORD
Commander, S.O.S.
ropean Theater
of Operations

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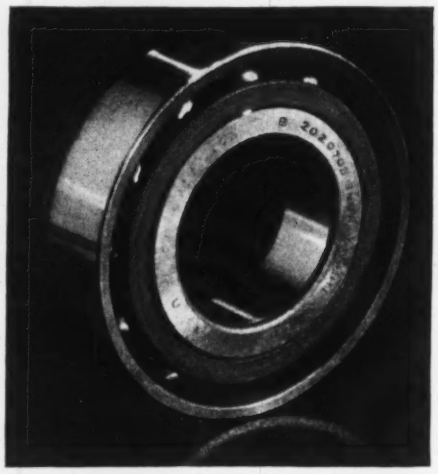
[PUMP TIPS FROM ALLIS-CHALMERS — ONE IN A SERIES]

How to make BEARINGS Last Longer . . .

ONE OF THE MAIN CAUSES of bearing trouble is misalignment. For when pump and its driving motor are not correctly aligned, every revolution of the shaft throws tremendous extra load on all moving parts within the pump's closely fitted body — resulting in greatly accelerated wear, oftentimes in complete bearing failure.

In an effort to eliminate the misalignment factor, A-C developed, for many applications, the "Electrifugal" pump — in which both motor and pump impeller are mounted on one shaft and in one frame. This *unit-design* prevents shaft from getting out of line . . . minimizes possibility of excessive bearing wear.

However, many pumps in use today are coupled to *separate* driving motors. In guarding against misalignment in this type pump, see that coupling flanges are perfectly aligned — and that they're kept that way!



Allis-Chalmers "Electrifugal" Pumps are equipped with two large ball bearings which support *both* the rotor and runner on one shaft.

Regardless of whether your pumps are equipped with ball, roller or sleeve bearings, here are a few maintenance tips that can prove useful to you in getting longer life out of bearings:

▶ Although too much oil won't harm sleeve bearings, too much grease in anti-friction type bearings will *promote* friction and heat. Main job of grease in anti-friction bearings is to protect steel elements against corrosion, not friction.

▶ No one rule on lubrication frequency fits all pumps installations. So play safe: if anything, change lubricant *before* it's too worn or too dirty.

▶ Once a month, check bearing temperatures with a thermometer . . . *not by hand.*

▶ In the case of sleeve bearings measure bearings for wear every three months, replacing them when wear is excessive. Generally allow two-thousandths of an inch clearance — plus one-thousandth of an inch for each inch of shaft journal diameter.

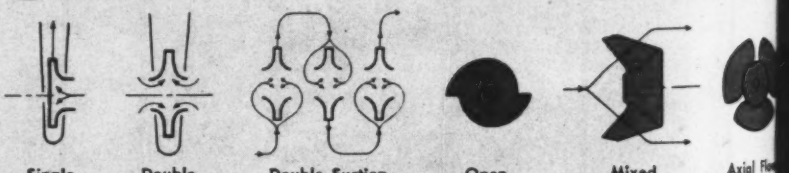
▶ Every three months, drain lubricant, washing out oil wells and bearings with kerosene. In the case of sleeve bearings, check to see that oil rings are free to turn with the shaft.

▶ If you haven't done so already, send for Allis-Chalmers *free* "Handbook for Wartime Care of Centrifugal Pumps". Applies to *all* makes of pumps; contains *no* advertising. Contents include: valuable tables on friction losses; handy guide to locating trouble; time maintenance schedule. Address your request to ALLIS-CHALMERS MFG. CO., MILWAUKEE 1.

♪ *Tune in the Boston Symphony, Blue Network, every Saturday at 8:30 pm, EWT.*

ALLIS-CHALMERS PUMPS

Allis-Chalmers builds all types and variations of pumps shown at right. Capacities from 10 to 150,000 gpm—heads to 2500 lbs.



The Week In Engineering and Construction

GINEERING NEWS-RECORD • MAY 11, 1944 • VOLUME 132 • NUMBER 19

Wider horizons for planning stressed at Chicago meeting

Planning of civic improvements on a regional rather than on a metropolitan basis is chief topic at meeting of American Society of Planning Officials.

That public works planning must e popular support and must be of egional nature was the prevailing nion expressed at the annual meet- of the American Society of Plan- Officials held in Chicago on May Success of the Tennessee Valley hority development was attributed ely to these factors, according to id E. Lilienthal, TVA chairman. major feature of the meeting was presentation of ten-minute reports postwar planning by representa- s of many cities, the cities being sified into three groups, those of 300,000 population, those from ,000 to 50,000, and those under 00.

Cincinnati has over $10,000,000 th of public works plans in the -print stage, reported Alfred Bett- chairman, Cincinnati City Plan- Commission. A master plan is g prepared and, since the metro- tan area must be the unit to be ted, a regional council is being or- zed to expedite the planning. An ropriation of $100,000 has been e available to carry on the work, the city council promising to ropriate as much again when ded, he said.

Milwaukee active in planning

here has been much activity dur- the past two years in the develop- t of a master plan for Milwaukee, according to Alvin C. Bromm, planning director. A technical mittee of Public Works, estab- d in 1941, has prepared a six-year ram of civic improvements, based the pay-as-you-go principle. gislation enacted last year pro- for a permanent improvement said Mr. Bromm, permitting s to be carried over from various rnmental departments. Without of a bond issue, Milwaukee now has scheduled a $22,000,000 postwar public-works program, one-half of which covers city-planned projects.

Over one-third of Milwaukee's public works program is in the blueprint stage, asserted Mr. Bromm. This includes plans for $8,000,000 worth of relief sewers and one large bridge. Final plans are being prepared for another bridge and the two structures will cost $1,200,000. Plans for a $500,000 viaduct are nearing completion, he said, and the right-of-way has been secured.

Kansas City, Mo. has a $15,000,000 public-works program ready now, declared John M. Picton, chief planning engineer. A large portion of this work is in the regional highway field, he said, and one project includes a large permanent building at the city's newer airport. A six-year plan of civic improvement, adopted in 1941, will be used immediately after the war. Last year the city council appropriated $40,000 per year to carry on the work. Unemployment in Kansas City is estimated to run between 80,000 and 100,000 after the war, asserted Mr. Picton.

Louisville plans many projects

Reporting for Louisville, Ky., Carl Berg, planning engineer for the city of Louisville and Jefferson County, said that a $90,000,000 master plan was adopted last spring. Already in the blueprint stage are plans of new coagulation basins to be built by the Louisville Water Co. at a cost of $750,000.

(Continued on next page)

Associated Press photo

Italian dam destroyed by air attack

Using tactics carefully developed last year for the attack on Moehne and Eder dams in Germany (ENR June 17, 1943, p. 980 and Dec. 9, p. 860), allied airmen on May 5 breached the control gates of a dam on the Pescara river in Italy to flood German positions on the Adriatic Coast and to cut off their power supply. The attack was carried out by British, Australian and South African fliers, who dived from great heights and dropped their bombs from low altitudes in order to place them accurately behind the big steel gates that make up the principal part of the structure.

Louisville's most serious problem, said Mr. Berg, is that of adequate sewers. Studies are being made for the construction of a flood wall around the city, interceptor sewers, pumping stations and a sewage-disposal plant for which preliminary plans have been drawn.

The housing situation in Louisville is serious, asserted Mr. Berg. A 1940 census showed 40 percent of the dwelling units in need of major repairs or lacking adequate bathing facilities, and over 10 percent were overcrowded. The city expects an addition of 36,000 permanent residents after the war over the prewar population, for which housing must be provided, he said.

Charles E. Hatch, engineer-secretary for the planning commissions of the City of Toledo and Lucas County, reported a planning budget of $45,000 per year. He reported the interesting fact that Lucas County is furnishing half the cost of developing a postwar plan for Toledo. The city's postwar plan amounts to $85,000,000, ten percent of which has been blueprinted, representing sewerage improvements, grade separations and street paving, he said.

Detroit's plans progress rapidly

Telling of Detroit, Geo. F. Emery, city planner, asserted that working drawings are being prepared for $247,577,000 worth of public works. Plans for 39 projects, totaling $36,000,000 have been completed. Plans for 40 projects to cost $119,000,000 are on the drafting boards, while $92,000,000 worth of work is scheduled for early attention. Over 150 technicians are engaged in preparing these plans, declared Mr. Emery.

A breakdown of Detroit's postwar projects designed to provide 68,300 man-years of employment for a large number of various skills, according to Mr. Emery, include: $70,700,000 for highways and transportation; $69,900,000 for sewer systems; $17,000,000 for water supply; $12,600,000 for public welfare; $15,000,000 for public housing; $45,000,000 for education; $12,600,000 for public safety; $11,000,000 for recreation; and $11,000,000 for miscellaneous public service facilities.

Large community center proposed

Plans for $500,000 worth of public works construction are ready to go in Dearborn, Mich., as soon as materials become available, according to Frederick R. Storrer, secretary of the Dearborn City Plan Commission. Plans for an additional $750,000 worth of projects are nearing completion. One singular project being given serious consideration is a 160-acre community center for recreational, education and civic purposes, he said.

In Duluth, Minn. a utilities company has completed studies for a water purification plant, extensions of gas and water mains and additional reservoirs for water storage, reported Aaron B. Horwitz, city planning engineer. The city is nearly ready to report on a municipal garbage collection system and is studying the extension of sewage disposal facilities to serve the 10 percent of the city's population not connected at present with the sewage treatment plant.

Propose "buffer" parks

Something new in the way of city-park design was proposed by H. Evert Kincaid, executive director, Chicago Plan Commission. Besides providing for the maximum amount of recreational usage, many new parks could serve very well as protective barriers or "buffers" between residential areas and districts devoted to less harmonious activities, said Mr. Kincaid.

Officers elected for the forthcoming year include Wilson W. Wyatt, mayor of Louisville, Ky., reelected as president of the association and Charles S. Ascher, regional representative, National Housing Agency, New York City, treasurer. The new vice president is Geo. S. Wehrwein, member of the Wisconsin State Planning Board. Walter H. Blucher, of Chicago, is the association's executive director.

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OPA announces new plan on used equipment sales

Second-hand construction equipment and parts owned by contractors when sold through a dealer must be registered with the Office of Price Administration in addition to being registered with the War Production Board, according to authority delegated the OPA by WPB. However, contractors selling direct, instead of through a dealer, are not required to register with OPA. The new requirement affects only dealers, agents, auctioneers, brokers and machinery manufacturers.

Flood waters recede in Mississippi valley

The flood crest in the Mississi River between St. Louis and the mo of the Ohio continued to recede l week, but a secondary rise of les magnitude is expected due to hea rains in lower tributaries of the M souri and in the nearby valley of t Meramec River, which enters t Mississippi below St. Louis.

Col. L. B. Feagin, district engin at St. Louis, reports that the Mis sippi at that point had dropped fr 39.2 on April 30 to 33.9 on May The crest reached Chester, Ill., 70 mi downstream on May 2. On May 5, d to the saturated condition of the lev protecting the Perry County levee d tricts on the Missouri side oppos Chester, evacuation of those distri was ordered. By May 8, however, levees were still holding and the cr cal stage appeared past.

In Arkansas, the Onachita River nearly 13 ft. above flood stage at C den, Ark., on May 4 and was still ing. The flood record there is 4 ft., which was reached in the 1 flood.

The Trinity River in Texas also reported to be in flood due to he rains at its headwaters.

Flood funds asked

Appropriation of $10,000,000 for repair, restoration or strengthening levees and other flood-control structu was introduced into Congress recen by Senator Scott W. Lucas of Illin Pending appropriation of this mon the Secretary of War would be thorized to make allotments from e ing flood-control funds for use in re work.

Flood measure passed

The House of Representatives on M 9 passed a bill authorizing the expe ture of $810,000,000 on flood-control the postwar period. It makes possi the preparation of plans by the corps engineers so that work can st promptly after the war. The bill strongly opposed by representa Plumley of Vermont.

Included in the bill is additio work on the Mississippi, the Miss and their tributaries, also on numer other rivers throughout the coun much of which was held up by the

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ood Preservers expect greater use of e-resistant wood after the war

pects of expanding the market for fire-resistant wood and r treated timber products is chief topic at American Wood ervers Association annual meeting.

ugh timber construction in this is at a low level due to the war- mands for timber crating for s shipments and the fact that ncy construction of war plants is e timber preservative industry is n idle. Instead. it is making big or expanding its field of treated products for after the war.

was revealed at the 40th annual of the American Wood Preserv- sociation, held in Chicago on 6, where some 200 top flight-men field of timber preservation and sting laboratories discussed new s of treating timber, simplifica- laboratory tests and the postwar ts for treated timber.

ited to a one-day meeting on ac- of wartime conditions, it never- covered many problems of tim- eatment. Chief among these was istant timber. Although fire-re- wood was first used commercially 50 years ago the impetus given he widespread use in recent war- construction has improved the ue of fireproofing timber to such ee as to make it applicable for uses after the war.

ted on a performance basis

proofing of timber in several large hangars, completed not long as specified on a performance ather than a stated retention of ofing salts per cubic foot of wood. ing to a paper by Capt. Wm. H. (CEC) USN, Bureau of Yards cks, Washington, D. C. This was hiefly because authentic data was ilable on the relation between ab- n and fire resistance for the vari- eatments involved.

tain Smith's report, which was ted at the conference by Lt. . Neil W. French (CEC) USNR, o, pointed out that shrinkage ms on the fire-retardant structures less than those encountered on ry timber construction. This was d to be due to the treated lum- rying less in moisture content over eriods of time, with correspond- ess change in volume.

proven ability of fireproofed to meet large-scale assembly ugurs well for this product to e strongly with other fireproof als after the war, according to a report by F. A. Hartman, vice-president, Protexol Corp., Kenilworth, N. J. Other characteristics of the material are that it is flexible, it can take plenty of punishment and can be easily refinished. It serves as a good insulator and can resist heat transmission to a high degree.

Fireproofed plywood

A large postwar demand for fire-retardant plywood was predicted by

W. P. Arnold, new president

Mr. Hartman. Its many and varied wartime uses illustrate some of its potentialities. Although many military uses of fire-retardant plywood still are undisclosed, it is known to have played a prominent part in insulation, elimination of condensation, paneling of steel bulkheads as well as in the construction of electric conduits and switchboxes.

Fireproofing of plywood may be done by either of two ways, Mr. Hartman said. One is the treatment of individual veneers prior to being bonded into the finished panel. The other involves the treatment of the entire panel after having been bonded. Both methods, however, need careful application to insure a dependable product, and considerable improvement is needed in both processes, he said.

Public interest aroused

Although the lumber industry has known for years of the practicability of making timber resistant to fire it has taken the widespread publicizing of military structures built of this material to make the public conscious of its possibilities. This was the opinion of J. F. Linthicum, president, American Lumber & Treating Co., Chicago, who also reported that 37,000,000 bd. ft. of fire-resistant lumber has been used in wartime construction.

Oil-well pumping units built of wood treated with toxic-salt preservatives will find a ready market after the war, according to Leonard Perez, district sales manager, Koppers Co., St. Louis. The resilience of wood in these structures will protect both the engine and the sucker-rod mechanism against damaging shocks. Other timber products expected to increase in favor after the war, asserted Mr. Perez, include timber jetties for protection of stream banks against erosion, and prefabricated timber bridges. The latter may find a ready foreign market, he said.

Heavy timber construction

The present large market for heavy timber construction for ferry slips, wharfs, mine and railroad structures will remain for many years, according to a report submitted to the conference by Verne Ketchum, chief engineer, Timber Structures, New York City. The increased traffic load on rapidly deteriorating structures of untreated timber on railroad lines and highways will call for an increased timber construction program for at least five years after the war. This program is expected to require from 15 to 20 percent more timber than for the programs of the last prewar years, he said.

Reporting on the postwar timber requirements of some leading railroads, Mr. Ketchum pointed out that one railroad contemplates increasing its normal 4 million board feet, of timber construction to 5 or 6 million feet per year for five years after the war. Another railroad will use 3 to 4 million feet per year together with some 250,000 lin. ft. of timber piling.

One railroad expects a 27 percent increase over normal requirements for timber construction. Ballasted deck bridges on this line will utilize 6,000,000 bd. ft. and 3,000,000 bd. ft. will be installed each year in open deck bridges. Two railroads contemplate only a return to normal timber construction programs, according to Mr. Ketchum.

W. P. Arnold, technical director of the wood preserving division of the Koppers Co., Orville, Ohio, was elected president for the forthcoming year succeeding R. H. Colley. S. D. Hicks and J. H. Bremicker are the new vice-presidents, and H. L. Dawson was re-elected secretary-treasurer.

New York State professional engineers report opposition to legislation

Bills calling for needed changes in the state license law for engineers fail to come out of committee — Help of other professional groups to be sought next year

Plans of the New York State Society of Professional Engineers to amend the state license law to strengthen it and to facilitate its enforcement came to naught this year due to opposition within one of the powerful committees of the state legislature. This fact was reported to the society at its annual meeting in New York May 5-6 by Robert C. Wheeler, chairman of the legislative committee. As the opposition appears to be against any changes in professional laws, the society plans to enlist the support of other professional groups in getting stronger support for the needed legislation next year.

Discussion of legislative matters took much of the business session. Prof. Harry E. Nold, president of the National Society of Professional Engineers, told how the Ohio society had succeeded in getting its legislative program approved through a state-wide campaign to maintain personal contact with members of the legislature to acquaint them with the society's aims.

Engineers-in-training

John C. Riedel, chairman of the society's committee on engineers-in-training, reported that 71 young engineer graduates now have been certified as engineers-in-training in New York state. As about 35 percent of these men are now in the armed services, and as others are widely scattered, Mr. Riedel said that the society's proposal to set up a society of engineers-in-training would have to wait until after the war.

At its winter meeting, the society authorized the appointment of a committee on minimum fees and salaries and instructed the committee to bring in a report within 90 days because of the urgency of having the society on record as to what minimum compensation rates should be. George F. Chism, chairman of the committee, reported that it has been studying the Ohio schedule, but has not reached the point of being able to recommend any for New York State.

Discussing this report, Arthur V. Sheridan, commissioner of public works, Borough of the Bronx, recommended that the society adopt the Ohio schedules, at least tentatively, pointing out that they are the result of many years of work.

Members needed

Retiring president James F. Fairman, vice president, Consolidated Edison Co., New York, noted with regret the society's slight decline in membership during the two years that he has been in office, and strongly urged the chapters to campaign actively for new members. To be fully effective, he said, the society must either greatly increase its membership or raise its dues.

Later in the meeting the tellers reported that an amendment to the constitution raising the dues has been adopted due to the failure of required number of members to vote the measure.

Speakers at the luncheon meeting were Prof. Nold, president of national society, and Lawrence Appley, executive director of the Manpower Commission. The latter spoke on the present manpower situation, characterizing it as the most critical that the nation has ever faced. We are now in a plateau, he said, in which we have drawn on all available manpower resources. The military forces are at or near their peak and industry is at its peak, but its operation is being upset by cutbacks in some industries and by increased demands in others. The necessary readjustments of manpower cannot be easily met, Mr. Apply said, "because manpower cannot be stockpiled like materials and shifted to where it is needed."

Professor Nold centered his comments largely on the National Society of Professional Engineers and its work in professional matters. He took the Founder Societies to task for not giving the N. S. P. E. due recognition as the central agency for attaining the professional objectives of engineers. Real progress, he said, can be expected in such matters when those societies continue to work separately in the professional field.

New officers elected at the meeting were: Clarence W. Post, sales engineer, Penetryn Process, Inc., Albany, president, and Charles W. Burke, William H. Larkin, vice presidents. Ernest F. Fox and Patrick M. Reilly were re-elected financial secretary and treasurer, respectively. New directors are James F. Fouhy, Martin Nelson, Solon E. Friedeberg.

U. S. Steel Corp. enters prefabrication field

United States Steel Corp. has acquired a substantial interest in Gunnison Housing Corp. of New Albany, Ind., a leading manufacturer of prefabricated houses and other small buildings.

President Benjamin F. Fairless announced this in connection with his statement issued May 3 to the effect that U. S. Steel will enter the prefabricated house construction field on a large scale as one means of insuring a postwar outlet for new and improved products developed in the war period.

"One of the best means of meeting the large postwar demand for homes for people of modest means will be through the application of mass-production methods in the prefabricated housing field," Mr. Fairless explained.

Heavy equipment needed

A serious shortage exists in some types of heavy construction machinery, according to H. M. Hale, director of the construction machinery division of the War Production Board. Track-type tractors, cranes, shovels and motor graders are desperately needed.

All used equipment has been registered under WPB order L-196 but of these machines only about 2 percent have been made available for sale and 4 percent for rent. To keep the home front war machine operating it is necessary to make idle equipment available, particularly for mining, logging, oil field, pipeline work and agriculture.

Some tax relief on income from sale of such equipment is available through an equipment replacement plan, details of which can be obtained from any collector of internal revenue.

Texas highway work... are organizing a uni...

A new corporation titled Asso... Highway Construction and Maint... Employes has been chartered in ... simultaneously with the withdra... an application to the state labor ... missioner for approval of a char... a new independent labor union fo... way workers. The charter was ... under a state law providing f... organization of chambers of com... cotton exchanges and boards of ... which law does not require appr... the labor commissioner, as is re... when application is made unde... labor-union section of state law.

The directors of the new co... tion say that its purpose is to or... approximately 5,000 highway con... tion and maintenance workers.

OUR ENGINEER GENERALS

Deputy Chief, Services of Supply, European Theater of Operations

MAJ. GEN. ROBERT W. CRAWFORD

last June, American headquar- Services of Supply, in England with speculation. A major gen- f Engineers had arrived to be to another major general of En- who as S.O.S. chief since be- he North African invasion had a spectacular success of his job. there had been no deputy com- before, did this sudden estab- nt of the post mean the job of was getting too big for one man dle? Did it mean that the S.O.S. was going to get another assign- Did it presage his advancement to lieutenant general? So ran culation. And time proved all of ve been unusually acute.

job *was* getting too big for one ven one of the best, to handle; it e job of marshalling supplies for eatest invasion in history, then me twelve months away. The chief, although retaining his com- *did* get another assignment, as to General Eisenhower, su- allied commander, in March, And he was raised in rank to ant general.

new deputy S.O.S. head was Maj. Robert W. Crawford, and he no time in taking steps that ease the pressure on his chief, n. John C. H. Lee. He had liter- aped into town (having sprained le on the sands of Egypt), but d not postpone his getting to Conferences with his staff were rly and late. Threads of detail icked up and untangled. New el, arriving daily from the States, were moved into pre- niches in the organization. Plans eding up depot, airfield and as- raining camp construction were out. It was a busy first month, limaxed by (of all things) an t trip to an airfield to greet a tee of United States Senators and hem around our military instal- in Britain. And General Craw- ford took this in his stride, limp and all.

The first thing one notices about this 53-year-old officer is his twinkling eyes. Set in a weatherbeaten face marked by wrinkles that have been sculptured by years of smiling good humor, the eyes immediately command confidence and respect. A friendly, informal manner makes the leadership thus established easy to take. And backed by broad experience in military supply problems in this and the first World War, the leadership is very effective.

Maj. Gen. Robert W. Crawford

Why General Crawford was selected for the tremendously important job of handling supply preparations for the invasion of Europe from Britain is not hard to imagine, for as chief of our supply services in the Middle East he had done a superb job in supporting Montgomery's Eighth Army and our own Ninth Air Force during the critical six months of 1943 when they were pushing Rommel from El Alamein to Tunisia. In that job he had to meet the problems of unloading ships, of building storage depots, airfields and equipment maintenance shops, and of marshalling supplies of every description. The same problems had to be met in Britain. Moreover, in Africa he had worked closely with the British Army, so that their ways were no mystery to him. And he had worked with Lt. Gen. Brereton, commander of the Ninth Air Force, the principal American "army" in the Middle Eastern campaign, and in Britain this association was to be continued, because the Ninth is now our Tactical Air Force for the invasion.

Significantly, in Africa, his job did not end with stocking the supplies, but carried straight through to getting tanks, food and ammunition into the hands of the men on the firing line. Day after day his inspections by plane, by jeep and by boat took him into the actual fighting zones. So he also knows the part of his present job that will unfold as we push on into Europe. Awarded the Legion of Merit, June 24, 1943, his citation read "For outstanding and meritorious service as commanding general, S.O.S., U. S. Army Forces in the Middle East." General Crawford, it would seem, was a "natural" for the supply assignment in the E.T.O.

Throughout his entire military career General Crawford has had the varied and valuable experience that falls to the lot of Engineer officers. Graduating from West Point in 1914, he spent the next three years with troops and as an instructor in the Engineer School. He sailed for France in August, 1917, with the 1st Engineers, but soon thereafter joined the Chemical Warfare Service as supply officer, where he remained for the duration. Returning to the United States, he became assistant to the director of the Chemical Warfare Service for several months, and then transferred to the Office of the Chief of Engineers in Washington. Seven months there, followed by four months in the New York Engineer District and a year at Cornell,

(*Continued on next page*)

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where he gained a degree in electrical engineering, found him back in the Chief of Engineer's office for a four-year tour of duty.

From 1925 to 1928 General Crawford was district engineer at Duluth, Minn. Then after a year at the Command School at Leavenworth, he entered on a three-year assignment as district engineer at Honolulu. There followed a year as chief of the construction section, Office of the Chief of Engineers, a year as director of the projects division of PWA, six months as district engineer at Washington, D. C., and a year as a member of the Board of Rivers and Harbors. Next, after a year in the Army War College, he spent four years in New Orleans, first as regional director of operations of the WPA and then as Army district engineer there.

Such varied experience was to fit him for his next job, one that was to prepare him directly for his coming war assignments. This was a two-year tour of duty as chief of the supply and projects section of the War Plans Division of the War Department General Staff in Washington. But, after Pearl Harbor, it looked as if more specialist experience were in store for him, for he spent the first six months of 1942 at the Anti-Aircraft Artillery Replacement Center at Fort Bliss, Tex., and the last six months at the Headquarters of the Armored Force at Fort Knox, Ky.

In December, 1942, however, a supply job worthy of his talents turned up—locale, Middle East; headquarters, Cairo; objective, help save the Suez Canal and throw the Germans out of Africa. It was upon completion of this mission, in the summer of 1943, that General Crawford got orders to report to American headquarters in Britain. Since that time, news dispatches from England mention "harbors choked with supply ships," "acres and acres of storage depots," "the necessary airfields to support 2,000-plane raids" and similar items. Obviously General Crawford has been doing another job well. And as the next one looms—getting supplies to the fighting men in Europe—this same Engineer general is all set to repeat the performance.—*W.G.B.*

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Uniform building code planned for Connecticut

Superintendent of Public Works Samuel C. Cannon has been appointed a member of a building code advisory commission for Connecticut. A group will meet soon to discuss and study a revision of building codes. The purpose is to provide as nearly as possible a uniform code of building rules for the whole state.

Postwar problems of St. Louis regi considered at A.S.C.E. meeting

Chamber of Commerce committee prepares long-range plan whole metropolitan area—Progress on postwar high legislation reported

Postwar construction problems were among the subjects discussed at the joint meeting of the board of direction of the American Society of Civil Engineers and the St. Louis Section of the society in addition to the flood-control paper reported last week (*ENR* May 4, vol. p. 647).

Discussion of the postwar needs of the St. Louis region was opened by George C. Smith, president of the St. Louis Chamber of Commerce. This organization has been actively engaged in developing a program that is to go before the voters in the fall in the form of a $36,000,000 bond authorization that, with other available funds, will make possible some $60,000,000 of postwar construction. Included is remodeling the water supply system, sewer additions, additional airport facilities, street and access highway work and new community facilities. Nothing has gone into the program that has not been approved as to its engineering and economic soundness.

The bond issue will provide for only the initial stages of a long-range program for the whole St. Louis region, a major part of which is designed to restore blighted areas within the city to usefulness and to check the formation of other depressed areas.

Activities of the American Society of Civil Engineers with respect to the postwar era were outlined by Malcolm Pirnie, president of the society, at a luncheon meeting. The most recent action is establishment of the research division of the Committee on Postwar Construction under the direction of Vincent Smith, associate editor of *Construction Methods* (ENR—Apr.6,1944 Vol.p.455).

Postwar highway legislation

National planning for postwar highway development was reviewed by Carl W. Brown, chief engineer, Missouri Highway Department, and president of the American Road Builders Association, and by Samuel C. Hadden, chairman of the Indiana Highway Commission and president of the American Association of State Highway Officials.

Mr. Brown said that the projected interregional highway system was designed to eliminate some of the traffic problems of metropolitan regions referred to by E. C. Smith in this talk on the St. Louis region. Standar on the interregional highway repo sound for metropolitan regions, Brown said, but he is of the op that they may be too high for l traffic areas away from centers of p lation.

Legislation this year

Mr. Hadden reported that hea on postwar highway legislation in gress are about completed, but t is too early to predict what sort bill will come out of the committee chairman of the House committee assured him that legislation wi reported out in time to be app by Congress before it adjourns.

In discussion, Robert W. Hodso Louis, expressed the view that cons tion of the interregional highway s will accentuate the growth of bli areas within cities unless so-called bon development" along such high is closely restricted.

A rapid review of factors affe employment in the postwar p was given by Col. William N. C chief engineer of the Federal W Agency. The fact that uncert makes it impossible to evaluate m these factors, said Col. Carey, s serve only to emphasize the impor of preparation for the maximum a of employment in the field in w civil engineers play a large namely, construction. Operation the construction industry could stepped up to produce 15 perce the national income, he said.

Col. Carey laid special stress o importance of having plans for p works ready so that they can be into effect quickly if needed. H he said, only a start has been m on the planning that could be adva to the contract-letting stage.

Current farm real estate m prices released by the Bureau of cultural Economics indicate that way officials buying rural high rights-of-way in 1944 will have to an average of 15 percent more th year ago; or 38 percent more, on average, than during the period tween 1935 and 1939.

JOBS OF THE WEEK

AVIATION FACILITIES, El Toro, Calif.

Bureau of Yards & Docks, Navy Department, Washington, D. C., gave a contract for additional aviation facilities, Marine Corps Air Station, to Del. E. Webb Construction Co. at $2,502,880.

QUAY WALL, San Diego, Calif.

Bureau of Yards & Docks, Navy Department, Washington, D. C., awarded a contract for constructing quay wall, to M. H. Golden Construction Co., San Diego, Calif. at $1,810,825.

SHELL PLANT, Fontana, Calif.

Henry J. Kaiser, Fontana, will construct a plant to make shells for Army Ordnance by his own forces. The estimated cost is $8,000,000.

HORSESHOE DAM, Phoenix, Ariz.

Phelps Dodge Corp., Douglas, awarded a contract for the construction of a combined earth and rock fill dam in Verde River to L. E. Dixon Co., Los Angeles, Calif., at $1,659,000. Leeds, Hill, Barnard & Jewett, Phoenix, are the engineers.

CARRIER PIER, Alameda, Calif.

Bureau of Yards & Docks, Navy Department, Washington, D. C., awarded a contract for constructing new carrier pier, at Naval Air Station, to Ben C. Gerwick, San Francisco, at $1,834,000.

RAILROAD, Washington.

Bureau of Yards & Docks, Navy Department, Washington, D. C., awarded a contract for 26 miles Bremerton-Shelton railroad to General Construction Co., Seattle, Wash., at $1,889,043.

HOUSING, Jacksonville, N. C.

Public Housing Authority, Atlanta, Ga., received the lowest bid for 200 family dwelling units from V. P. Loftis Co., Charlotte, N. C., at $562,500. Housing is for use of Navy Department.

HANGARS, CONCRETE APRON, etc., Oakland, Calif.

Bureau of Yards & Docks, Navy Department, Washington, D. C., awarded a contract for constructing six Kodiak type hangars, concrete apron, grading, cargo storehouses, general storehouse at Auxiliary Air Station to Johnson, Drake & Piper, Oakland, Calif., at $783,000.

AIRPORT, Fort Nelson, B. C.

Department Munitions & Supply, Ottawa, Ont., has awarded a contract for asphalt and concrete runway paving, for extensions to airport to Tomlinson Construction Co., Ltd., Toronto, Ont. The estimated cost is $1,250,000.

INTERIM OVERHAUL SHOP, Alameda, Calif.

Bureau of Yards & Docks, Navy Department, Washington, D. C., awarded a contract for completing interim overhaul shop at Naval Air Station to G. W. Williams Co., Burlingame, at $1,169,800.

CONSTRUCTING AND REPAIRING RAILROAD, Mexico.

Southern Pacific R. R. Co. of Mexico, W. B. Barker, chief engineer, Guadalajara, awarded contract widening right of ways, reconstructing bridges, rebalasting lines, constructing dikes, opening drainage ways on eight hundred miles railroad in northern Sinaloa, to Utah, S. A., Mexico City, at an estimated cost of $800,000.

WATERFRONT CONSTRUCTION, Seal Beach, Calif.

Bureau of Yards & Docks, Navy Department, Washington, D. C., awarded a contract for waterfront construction, Naval Magazine and N.N.D. at San Pedro and Long Beach area to Guy F. Atkinson Co., Long Beach, at $854,000.

BARRACKS and STOREHOUSES, California.

Nielsen, Erbentraut & Summers, San Francisco, Calif. has been awarded a contract by the Bureau of Yards & Docks, Navy Department, Washington, D. C., for barracks, storehouses and training building at Naval Air Station Crows Landing and Vernalis, to cost $528,700.

Note—Additional bidding and contract news on many projects large and small appear in the Construction section beginning on page 11.

Alabama's greetings are presented in stone

Trunk line highways entering Alabama now have marble shaft greetings like this one on Bankhead Highway near Hamilton, Ala. It was erected by the Alabama State Highway Department. It is of Alabama marble, bears the words "Alabama Welcomes You," the state seal, and the information that the state was the 22nd admitted to the union.

Beach erosion meeting Chicago May 31-June 1

The first national conference on beach erosion prevention and shore-front development in three years will be held at the Palmer House in Chicago on May 31 and June 1. This is announced by J. Spencer Smith, president of the American Shore and Beach Preservation Association and of the New Jersey Board of Commerce and Navigation.

At the conference there will be an exchange of information and a discussion regarding the inclusion of shore protection and beach development projects in postwar programs.

Speakers will include: Brig. Gen. John J. Kingman, and Maj. Gen. Edward M. Markham, retired, former Chief of Engineers, U.S.A., and president of the Great Lake Dredge and Docks Co. There will be a symposium by technical experts of the American Wood Preservers Association, the Portland Cement Association and American Iron and Steel Institute. An inspection of waterfront developments in the Chicago area is scheduled for June 1. During the meeting, the Beach Erosion Board of the Corps of Engineers of the United States Army will also meet for discussions.

Robert J. Kingery, director of the association for Illinois, and general manager of the Chicago Regional Planning Association, 160 North La-Salle St., Chicago 1, is in charge of arrangements.

Fig. 1—Erection of the trusses, which were delivered in 50-ft. sections, was started before the floor was paved.

Pacific Northwest Depot Nears Completion

Soon to be completed at Auburn, Wash., is one of the largest military storage installations ever constructed on the Pacific Coast. The project, which is located in the White River Valley, is the Transportation Corps' holding and reconsignment point and an Army Air Forces depot. Equipment and supplies shipped to and from this point will play a very important part in the Pacific war against Japan.

Most outstanding feature of the work has been construction of twelve 200x 835-ft. one-story warehouses simultaneously with 41 miles of railroad, 70 acres of open-storage space, several miles of roads and sewerage and water supply systems. In addition 1,300,000 cu. yd. of grading was required. Despite these other activities, the first warehouse was completed seven weeks after the first contract was awarded and all twelve warehouses, which provide two million square feet or 46 acres of floor space, six months after the award of the contracts.

Each warehouse provides four 50-ft transverse bays. The longitudinal spacing of the 8x8-in. timber columns is 16 ft. To reduce the need for critical materials, the foundations were built of plain concrete, the walls and firewalls of concrete block and clay tile, and the roof framing of timber.

The roof trusses were fabricated at Portland, Ore., and shipped to the project in single-span lengths. The two center spans were joined on the job, the supporting columns added, and the two spans raised as a unit by a crawler crane. Erection of the trusses for the two outer bays followed closely behind. The roof trusses were erected at an average rate of 40 per day by a crane with an extra long boom, the 100 trusses for one warehouse being erected in five days.

Because of the close spacing of the transverse trusses no longitudinal trusses were required, the timber purlins offering sufficient stiffness in this direction.

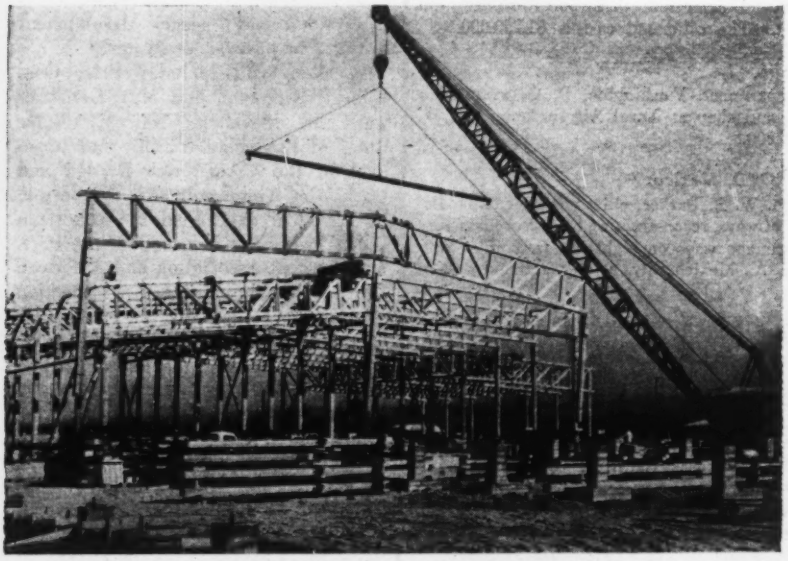
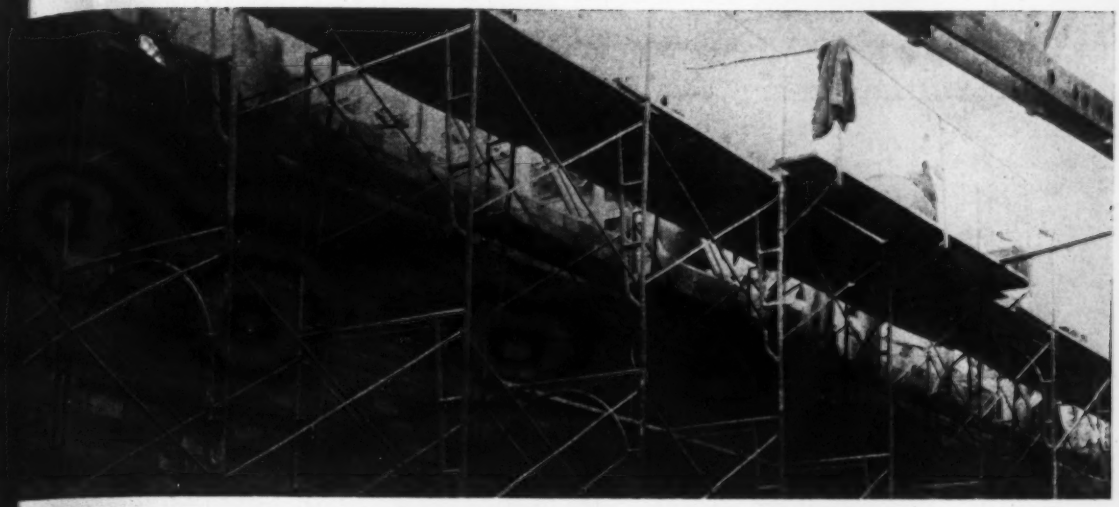


Fig. 2—With supporting columns attached trusses for two center bays are erected as a unit by a crawler crane. By this method construction was rapid.

Those in charge

The construction was by the Seattle District U. S. Army Engineers, with Col. Richard Park as district engineer



g. 3—Masons building firewalls worked on steel scaffolds, which could be moved quickly ahead as work advanced.

ing the early part of the project Col. Conrad Hardy during later ges. Maj. Adellon H. Hogan, now rseas, was area engineer for the rt Lewis, Wash., area. During de- pment of the assignment Capt. nard W. Bindon was resident engi- r during the greater part of con- ction, and Capt. John X. Start in rge on later stages.

The clearing work was done by West st Construction Co., Seattle, the ehouses and miscellaneous buildings structed by Woodworth & Co. and cDonald Bldg. Co. of Tacoma, and railroad, highway, open storage drainage work was done by Sound, its, Morrison and Knudsen as joint turers.

Virtually complete, the project is be operated by the Transportation ps.

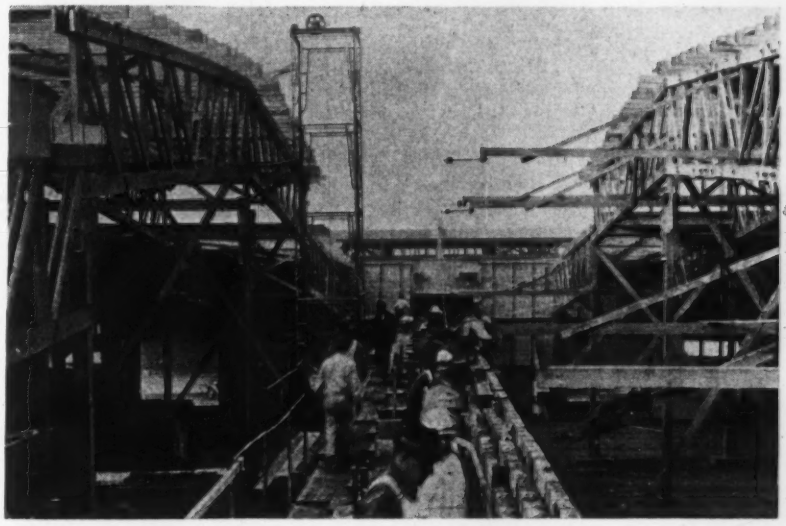
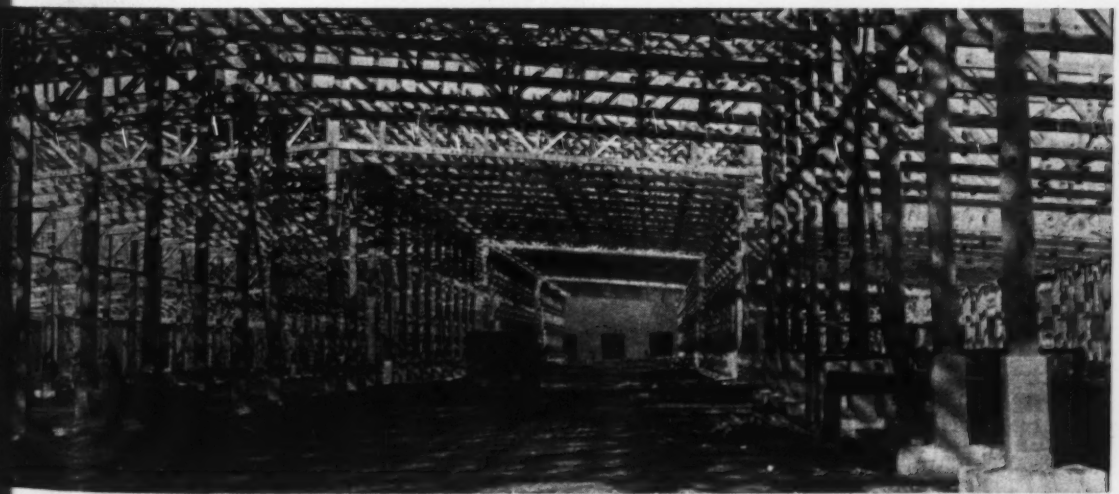


Fig. 4—Brick firewalls were not started until truss erection was complete on both sides of the wall.



5—Completed framing casts an interesting pattern against the sky. When floor is paved its upper surface will be l with the top of the plain concrete footings.

OBITUARY

William A. Stickel, 51, serving his fifth 5-year term as county engineer of Essex County, N. J., died in Newark on May 4. He had carried out an extensive road building program in that county, and was highly regarded as a public official through many years.

P. W. Blanchard, 51, contractor and engineer died in Denver, Colo. April 28. For a number of years he lived in Cheyenne, Wyo., and was president of the Wyoming chapter of the Associated General Contractors. At the time of his death he was a member of the board of directors of the Colorado chapter of the A. G. C. in Denver.

Alfred L. Jayne, 72, engineer at Mentor, Ohio, died April 24 in Cleveland. For years he was connected with the Painesville city water department.

Lawrence Pyle, 67, chief engineer of the Chesapeake & Ohio Railway died in Richmond Va. May 1. Mr. Pyle started as levelman in 1902 at Huntington, W. Va.

W. A. Bolinger, 83, one of the 18 founders of the Washington Good Roads Association more than 40 years ago, died April 20 at Wenatchee, Wash. Mr. Bolinger was widely known for his pay-as-you-go policy of highway construction.

Charles A. Fellows, 81, who was credited with building a majority of the Santa Fe Railway's stations, bridges and Harvey Houses west of Chicago, died April 21 in Los Angeles, Calif. Mr. Fellows was Mayor of Topeka, Kan., for two terms during the early 1890's. At the time of his retirement five years ago, Mr. Fellows had been with the railroad for 55 years.

Louie Elwood Sellers, 58, of Washington, D. C., for thirty years an engineer with the United States Engineers, died April 28 in Baltimore.

Thomas R. Stockdale, Jr., 61, a civil engineer with the United States Engineers for the past 10 years, died April 24 at Birmingham, Ala.

Harry C. Ehrman, 66, retired construction engineer, died April 26 at Raleigh, N. C., where he had made his home for the past 16 years. For many years he was erecting engineer for the York Manufacturing Co., throughout the United States and in Newfoundland. He also had a part in the construction of the Panama Canal.

Alfred Harries, 59, Warren, Ohio, building contractor, died April 20 in Youngstown. Born in Dayton, he went to Warren 27 years ago from East Liverpool and formed the Harries and Bowers Construction Co.

Jeremiah Ahern, 85, who was resident engineer in charge of construction during the building of Shoshone Dam in Wyoming, died April 19 in Dixon, Calif.

Mr. Ahern was graduated from the University of California, Berkeley, in 1883, and subsequently became an engineer with the U. S. Bureau of Reclamation. He retired from government service in 1910, following the completion of Shoshone Dam, which was the first large project of its kind to be constructed by the government.

Flood E. Koontz, 54, executive secretary of the Michigan Road Builders Association, died April 25. For many years he was estimate engineer for the Michigan highway department.

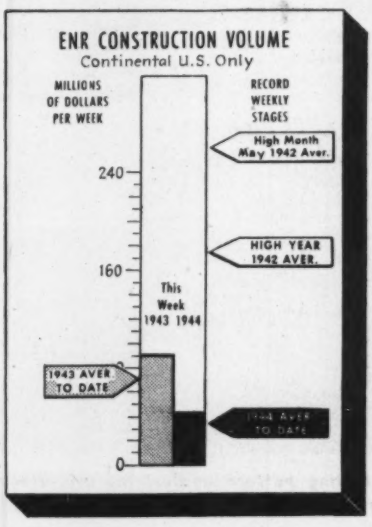
Grant Persons, 79, retired founder of the Persons Construction Co. of Omaha, Neb., died May 1. A charter member of the Omaha Builders Exchange, he served more than a dozen terms as president of the Master Builder's Association of Nebraska.

CONTRACTS AND CAPITAL

CIVIL ENGINEERING construction volume in continental U. S. totals $42,209,000 for the week. This volume, not including the construction by military engineers abroad, American contracts outside the country, and shipbuilding, is 1 percent above a week ago, and 18 percent higher than the average for 1944 to date, but is 54 percent lower than the volume for the corresponding 1943 week.

Private construction is 2 and 370 percent higher, respectively, than a week ago and a year ago. Public construction is up 0.2 percent compared with last week, but is 68 percent lower than last year.

The current week's construction brings 1944 volume to $679,227,000 for the nineteen weeks, a decrease of 51 percent from the $1,381,365,000 reported for the 1943 period. Private construction, $153,323,000, is 13 percent above last year, but public construction, $525,904,000, is down 58 percent as a result of the 4 percent decrease in state and municipal and the 61 percent drop in federal.



In the classified construction groups gains over last week are in waterworks, sewerage, commercial buildings, streets and roads, and unclassified construction. Increases over the 1943 week are in industrial and commercial buildings, and earthwork and drainage.

New capital for construction purposes for the week totals $6,554,000, and is made up entirely of state and municipal bond sales. The week's new financing brings 1944 volume to $412,152,000, a decrease of 16 percent from the $489,286,000 reported for the nineteen-week period in 1943.

CONTRACTS

Continental U. S. Only (Thousands of Dollars)

	Week Ending May 13 1943	May 4 1944	May 1 1944
Federal	$80,641	$23,669	$21,58
State & Municipal	7,435	4,675	6,80
Total public	$88,076	$28,344	$28,38
Total private	2,943	13,512	13,82
TOTAL	$91,019	$41,856	$42,20
Cumulative 1944 (19 weeks)			$679,22
Cumulative 1943 (19 weeks)			$1,381,36

Note: Minimum size projects included are: Waterworks and waterways projects, $15,000; other public works, $25,000; industrial buildings, $40,000; other buildings, $150,000.

NEW PRODUCTIVE CAPITAL

	1943 19 Weeks	Cumulative 1944 19 Weeks
NON-FEDERAL	$88,936	$166,58
Corp. Securities	2,821	69,91
State & Mun.	74,482	43,18
RFC Loans	8,500	53,70
FPHA Loans	3,133	
FEDERAL	$400,350	$245,28
TOTAL CAPITAL	$489,286	$412,13

ENR INDEX NUMBERS

Index base=100		1913	192
Construction Cost	May '44	298.00	142.2
Building Cost	May '44	234.80	126.5
Volume	Apr. '44	106.	46.